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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,762	PINGEL ET AL.	
	Examiner	Art Unit	
	MICHAEL LAPAGE	2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *28 July 2006, 29 October 2007, 3 January 2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-18 are presented for examination.

Claim Objections

2. Claims 1, 7, 11 and 16 are objected to because of the following informalities:

a. The end of the preamble in each claim should be followed by a colon, similarly each element should be followed by a semicolon.

b. In claim 16, line 37 "beams" should read –beam--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7, 13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely

exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, claim 1, lines 7-8, 11-12 recites the broad recitation "a first or second light beam", and the claim also recites "in particular a first or second laser beam" which is the narrower statement of the range/limitation. Therefore the examiner is interpreting the light propagating outward from the source is coherent laser light.

As to claim 7, it is unclear to the examiner if the detectors are required to be perpendicular to the surface of the sample or could be at any angle in reference to the sample. Therefore the examiner is interpreting that the detectors could also be positioned parallel to the surface of the sample and still perform the same function.

As to claim 13, it is unclear to the examiner whether or not the first and second angles of incidence are required to be at 45 degrees or if the light could propagate at any other angle towards the sample surface. Therefore the examiner is interpreting that any angle of incidence would still allow the device to function correctly and would only require minor math calculation changes.

As to claim 16, it is unclear to the examiner how two light beams L3' and L2' are formed from the incident beam L3, when looking to applicants Figure 1 it is clearly shown that only beam L3' is measured as a reflected beam from the surface of sample

2. Therefore the examiner is interpreting that the spacing between the beam L3 and one of the two first or second beams is what is being measured.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claim 1-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bredberg et al (U.S. Patent No. 5,442,573 and hereinafter Bredberg).**

As to claim 1, Bredberg discloses and shows in figure 15 shown below, a device for measuring the thickness of a transparent sample (2), in particular a glass strip or a glass pane,

having a first light beam [L1] (10a), in particular a first laser beam, incident on the front surface (8) [i.e. Front surface labeled below in figure] of the sample (2) obliquely at a first incident angle (.alpha.1) (col. 3, lines 32-37; where as shown in figure 15 the angle is oblique to the surface),

having a second light beam [10c] (L2), in particular a second laser beam, incident on the front surface [i.e. Front surface labeled below in figure] (8) of the sample (2) obliquely at a second incident angle (.alpha.2) [col. 3, lines 44-52],

the first incident angle (.alpha.1) and the second incident angle (.alpha.2) being different (figure 15, as shown below each beam propagates toward the surface and separate angles),

and having at least one detector [58] (11, 12) for detecting the light beams (L1', L1", L2', L2") of the first and second incident light beams [10a, 10c] (L1, L2) reflected by the sample (2), and for determining their position [col. 8, lines 30-47; where the position of impact of the beams on the surface of sample 20 is being detected] , characterized in that

at least one incident light beam [10b] (L3) substantially parallel to the first or second light beam (L1, L2) [i.e. as shown the second and third beam are substantially parallel] is directed toward the front surface (8) of the sample (2) [col. 8, lines 23-30], and in that

at least one detector [68] (11) is provided for detecting a light beam (L3') , reflected by the sample [20] (2), of the parallel light beam (L3), and for determining its position [col. 8, lines 30-47; where the position of impact of the beams on the surface of

sample 20 is being detected] .

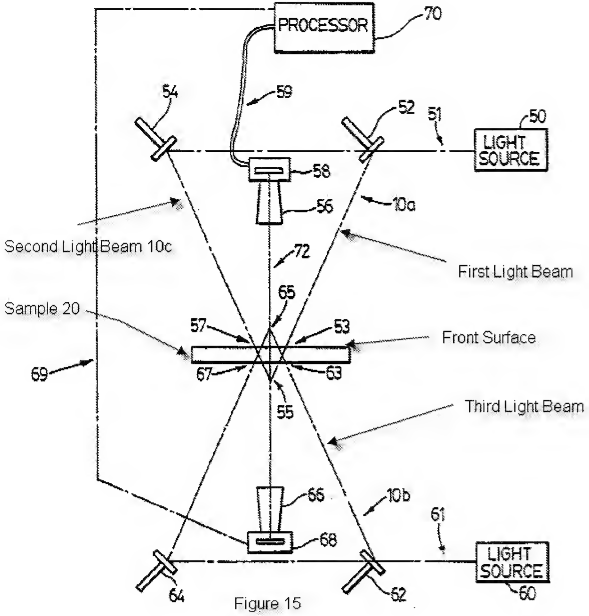

Figure 15

As to claim 2, Bredberg discloses a device characterized in the third light beam (L3) can be switched off [col. 8, lines 26-28, though not explicitly disclosed and known light source can inherently be turned on and off].

As to claim 3, Bredberg discloses a device as claimed in claim 1 or 2, characterized in that the incident light beams (L1, L2, L3 and/or the reflected light beams (L1', L1", L2', L2", L3') lie in a common beam plane [72] (14) [col. 8, lines 30-35; where inherently axis 72 and any point on one of the beam splitters would define a common beam plane).

As to claim 4, Bredberg discloses a device characterized in that the device (1) and the transparent sample [20] (2) are moved relative to one another [col. 8, lines 44-47].

As to claim 5, Bredberg discloses a device characterized in that the relative direction of movement (15) lies in the common beam plane (14) of the incident light beams (L1, L2, L3) and/or of the reflected light beams (L1', L1", L2', L2", L3') [col. 8, lines 44-47; where inherently if the sample is moving vertically in figure 15, it would still lie).

As to claim 6, Bredberg discloses a device characterized in that the first incident angle (.alpha.1) and the second incident angle (.alpha.2) lie in the beam plane (14), defined by the first and second light beams (L1, L2), on different sides referred to the sample normal (9) in the region of incidence (10) [col. 8, 30-35; where as shown the first and second light beams having first and second incident angles lie on different sides of the normal line 72 to the surface of sample 20].

As to claim 7, Bredberg discloses a device characterized in that two detectors [58,68] (11, 12) are arranged at a spacing from one another (i.e. inherently two detectors would have some type of space between them], preferably perpendicular to the surface (8) of the sample (2) [col. 8, lines 30-35; where though not shown and perpendicular the examiner is interpreting that the term preferably since non-limiting would provide the ability for the detector to also be positioned parallel to the surface of the sample].

As to claim 8, Bredberg discloses and shows in figure 15, a device characterized in that the region of incidence [57, 53, 67, and 63] (10) of the incident first, second and third light beams (L1, L2, L3) on the sample (2) is smaller than the spacing of two opposite detectors for detecting the reflected light beams (L1', L1", L2', L2", L3') [col. 8 lines 30-47; where as shown in figure 15 the distance between all of the impact points 57, 53, 67, and 63 is much smaller then the distance between the sample and the detectors 58 and 68]

As to claim 10, Bredberg discloses a device characterized by an evaluation device (i.e. processor 70), connected to the at least one detector [58, 68] (11, 12), for determining the thickness of the sample (2), an inclination correction, an angle correction and/or a curvature correction (i.e. warpage) being carried out, in particular [col. 8, lines 44-47; col. 9, lines 27-34 and lines 57-62).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 9 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredberg.

As to claim 9, Bredberg discloses and shows in figure 15, a device characterized by two beam splitters [52, 62] (3, 4) for producing the three light beams (L1, L2, L3) [col. 8, lines 26-30].

Bredberg does not explicitly disclose where all 3 light beams are from one light beam.

However, Bredberg does disclose in [col. 8, lines 26-30] using two light sources to form the 3 beams. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove one laser and position the beam splitters in line with the first source, since it has been held that omission of an element

and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In re Karlson, 136 USPQ 184.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bredberg by removing one light source to provide the advantage of reduced apparatus building costs.

As to claim 11, Bredberg does discloses and show in figure 15, a method for measuring the thickness of a transparent sample (2), in particular having a device (1) as claimed in claim 1,

in which a first light beam [10a] (L1) is incident obliquely on the front surface (8) of the sample (2) at a first incident angle (.alpha.1), and the positions of the light beam (L1') reflected at the front surface [53] (8) and of the light beam (L1") reflected at the rear surface [63] (13) are determined [col. 8, lines 30-40],

in which a second light beam [10c] (L2) is incident obliquely on the front surface (8) of the sample [20] (2) at a second incident angle (i.e. as shown in figure 15 and light is impacting at a separate angle) (.alpha.2), different from the first incident angle (.alpha.1), and the positions of the light beam (L2') reflected at the front surface [57] (8) and of the light beam (L2') reflected at the rear surface [67] (13) are determined [col. 8, lines 30-40],

the thickness of the transparent sample (2) being determined from the spacing of the light beams (L1', L1", L2', L2"), reflected at the front surface (8) and the rear surface (13), of the first light beam (L1) and/or of the second light beam (L2) [col. 5, lines 21-35; col. 8, lines 30-47), and

an inclination and/or wedge angle correction being carried out by comparing the positions of at least a portion of the reflected light beams (L1', L1", L2', L2") [col. 9, lines 27-56; where the device can measure inclination in the sample and thus calibrate to remove error], characterized in that

at least a third light beam [10b] (L3) is incident obliquely on the front surface (i.e. as shown light 10b is incident obliquely on the front surface) (8) at a known spacing (s) substantially parallel to the first or second light beam (L2) [i.e. as shown 10b is parallel to beam 10c],

Bredberg does not explicitly disclose where a curvature [i.e. where warpage can be interpreted as a form of curvature] correction is carried out by determining the positions of the light beams (L2', L3'), respectively reflected at the front surface (8) and at the rear surface (13), of these parallel light beams (L2, L3).

However, Bredberg does disclose in [col. 9, lines 57-68] where warpage can be calculated from a similar setup in figure 15 and where the device of Bredberg is always determining all information from the position of the light beams.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bredberg by calculating curvature of a glass plane in order to provide the advantage of further detail about the object being measured.

As to claim 12, Bredberg discloses a method, characterized in that the first light beam (L1) [10a] and the second light beam (L2) [10c] are incident from different sides on the front surface [i.e. as shown in figure 15] (8) of the sample (2) in the beam plane

[i.e. a plane defined by line 72 and one point on any of the beam splitters 52 and 62] (14), defined by them, referred to the sample normal [72] (9) in the region of incidence (10) [i.e. area between points 53, 63, 67 and 57] [col. 8, lines 23-35].

As to claim 13, Bredberg discloses a method, characterized in that the first and the second incident angles (.alpha.1, .alpha.2) are equal in absolute value and are preferably 45.degree [col. 3, lines 53-56; where the angles are not disclosed explicitly as 45 degrees but since the term preferably is non-limiting the examiner is interpreting that the splitters could be rotated to send light toward the surface at 45 degree angles].

As to claim 14, Bredberg discloses a method, characterized in that the spacing from the sample [20] (2) is determined in each case from the position of the light beams (L1', L2') preferably reflected at the front surface [i.e. as shown in the figure 15] (8) for the purpose of the inclination and/or wedge angle correction, a wedge angle or an inclination correction being undertaken when spacings do not correspond [col. 9, lines 27-56; where the device can measure inclination in the sample and thus calibrate to remove error].

As to claim 15, Bredberg discloses a method, characterized in that a wedge or inclination angle (.delta., .sigma.) is determined from a non-corresponding spacing of the reflected light beams [i.e. where the readings are reflected light be readings] [col. 9, lines 27-30].

11. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredberg in view of Caton et al (U.S. PGPub No. 2005/0046874 A1 and Caton hereinafter).

As to claim 16, Bredberg does not explicitly disclose a method, characterized in that the spacing between the reflected light beams (L3', L2') of the third light beam (L3) and the first or second light beam (L2) substantially parallel thereto is determined and, if appropriate, a curvature correction is carried out.

However, Caton does disclose and show in ([0054] and Figure 6) three light beams used to measure a radius of curvature and correct for and adjust for the error accordingly and further the beams 342, 344, and 346 are "substantially" parallel where "substantially" is a broad term. In re Nehrenberg (CCPA) 126 USPQ 383.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bredberg by measuring the radius of curvature of the sample to provide the advantage of further detailed information of the sample under test.

As to claim 17, Bredberg does not explicitly disclose a method, characterized in that the radius of curvature (R) and/or angle of curvature are/is determined from the spacing between the reflected light beams (L3', L2') of the third light beam (L3) and the first or second light beam (L2) substantially parallel thereto.

However, Caton does disclose and show in ([0054] and Figure 6) where the radius of curvature is determined by the spacing between [i.e. measured distances] the reflected beams (342, 344, and 346) and further the beams 342, 344, and 346 are "substantially" parallel where "substantially" is a broad term. In re Nehrenberg (CCPA) 126 USPQ 383.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bredberg by measuring the radius of curvature of the sample by spacing measurement to provide the advantage of efficient use of provided beam reflections to give further detailed information of the sample under test.

As to claim 18, Bredberg does not explicitly disclose a method, characterized in that the refractive power is determined from the radius of curvature (R).

However, it would have been obvious to one ordinary skill in the art at the time the invention was made to determine refractive power from radius of curvature since it was known in the art that only a simple calculation of dividing two by the refractive index results in the refractive power.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bredberg by calculating the refractive power from the refractive index of the sample to provide the advantage of further detailed information of the sample under test

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LAPAGE whose telephone number is (571)270-3833. The examiner can normally be reached on Monday Through Friday 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on 571-272-2287. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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